**Tablet Location Security Application**

**Technical Documentation & User Guide**

**Overview**

The Tablet Location Security Application is a mobile solution designed to prevent the unauthorized movement of tablets beyond designated work areas in manufacturing environments. This application uses real-time location tracking to create a virtual geofence, ensuring tablets remain within their assigned operational zones.

**Key Features**

1. **Location Capture & Boundary Setting**
   * One-tap location capturing for establishing the center point
   * Customizable radius setting in meters
   * Visual representation of the boundary on an interactive map
2. **Real-time Monitoring**
   * Continuous tracking of tablet location
   * Visual indicators showing:
     + Initial position (green marker)
     + Current position (red marker)
     + Boundary circle (blue transparent circle)
   * Real-time map updates as the device moves
3. **Alert System**
   * Visual warning messages when tablet exits the boundary
   * Vibration alerts when crossing the boundary
   * Automatic alert dismissal upon returning to the safe zone

**Technical Implementation**

**Location Services**

* High-accuracy GPS tracking
* Permission-based location access
* Background location monitoring capability
* Energy-efficient location updates

**Map Integration**

* OpenStreetMap integration for reliable mapping
* Custom marker overlays for position indication
* Dynamic circle overlay for boundary visualization
* Smooth map animations and updates

**Security Features**

* Location permission requirements
* Real-time boundary violation detection
* Immediate alert system
* Continuous monitoring capability

**How to Use**

1. **Initial Setup**
   * Launch application
   * Grant necessary location permissions
   * Position tablet at desired center point
2. **Boundary Configuration**
   * Press "Capture Location" button
   * Enter desired radius in meters
   * Confirm settings
3. **Monitoring Phase**
   * System begins automatic tracking
   * Map displays current position relative to boundary
   * Alerts trigger if boundary is crossed

**Technical Requirements**

**Android**

* Android 5.0 (API level 21) or higher
* Location services enabled
* Internet connectivity
* Required permissions:
  + ACCESS\_FINE\_LOCATION
  + ACCESS\_COARSE\_LOCATION
  + VIBRATE

**iOS**

* iOS 11.0 or higher
* Location services enabled
* Internet connectivity
* Required permissions:
  + Location When In Use
  + Location Always (for background monitoring)

**Benefits & Applications**

1. **Asset Security**
   * Prevents unauthorized removal of tablets
   * Real-time location awareness
   * Immediate alert system for security breaches
2. **Operational Efficiency**
   * Easy setup and configuration
   * Visual monitoring interface
   * Low maintenance requirements
3. **Flexibility**
   * Customizable boundary sizes
   * Adaptable to different facility layouts
   * Scalable to multiple devices

**Future Enhancements Possible**

1. **Administrative Features**
   * Multi-device management
   * Custom alert configurations
   * Historical movement tracking
2. **Advanced Security**
   * Remote boundary configuration
   * Authentication integration
   * Automated incident reporting
3. **Integration Capabilities**
   * Enterprise system integration
   * API for external monitoring
   * Custom reporting tools

**Support & Maintenance**

The application requires minimal maintenance with:

* Automatic map updates
* Built-in error handling
* Permission management
* Efficient battery usage

**Conclusion**

This application provides a robust, user-friendly solution for securing tablets within designated areas. Its real-time monitoring and alert system ensure immediate awareness of any security breaches, while its simple setup process allows for quick deployment in various manufacturing environments.